Remarks

The Final Office Action mailed March 14, 2003 has been received and reviewed. Claims 1, 24, and 58 have been amended. Therefore, claims 1, 6-24, 27, and 29-58 are pending in the present application. Reconsideration and withdrawal of the rejections are respectfully requested.

Summary of Telephone Interview in Related Matter

A telephone interview, between Mark Gebhardt and the Examiner and Supervisory Patent Examiner, was conducted on April 2, 2003 with respect to a related matter, U.S. Patent Serial No. 09/345,335. During the interview, it was noted by Mr. Gebhardt that the definition of certain terms in the claims of that particular application were not being given the meaning as per the specification by the Examiner. The Examiner indicated that such language was not in the claims and therefore, could not be given any weight in interpreting the claims in view of the art. Although Applicants disagree with such an assertion, it was agreed that the claims would be amended to reflect certain definition with regard to such terms. Some exemplary language was suggested and the Examiner seemed receptive to the consideration of such language.

In view of the above telephone interview in the related matter and the use of similar terms in the above-identified application, similar amendments to the claims in the above-identified application have been made to reflect certain definition with regard to such similar terms.

Drawings

Applicants continue to respectfully request consideration and approval of amended Figures 3 and 11, submitted with Applicants' response to the 8 November 2001 Office Action.

Claim Amendments

Applicants have amended certain claims to provide definition for certain terms therein. It is Applicants' position that such terms have always had the definition as presented in the now amended claims in view of the specification, and therefore, such amendments do not provide a narrowing effect thereon. In other words, the amendments only clarify the claims, however, the scope of the claims is intended to be the same after the amendment as it was before the

amendment.

The Rejections

Applicants continue to respectfully traverse the rejection of the claims based on the cited references and believe that the previously filed responses overcome the Examiner's rejections, particularly in view of the amendments made to the claims. Such responses are incorporated by reference herein. However, some additional remarks are provided below.

The 35 U.S.C. §103 Rejection

The Examiner rejected claims 1, 6, 9-19, 23-24, 29, 33-48 and 58 under 35 U.S.C. §103(a) as being unpatentable over Schaefer et al. (U.S. Patent No. 4,675,147) in view of Harrow et al. (U.S. Patent No. 5,375,199). The Examiner further rejected claims 20-22 as being unpatentable over Schaefer et al. (U.S. Patent No. 4,675,147) in view of Harrow et al. (U.S. Patent No. 5,375,199) and further in view of van Weele et al. (U.S. Patent No. 5,631,825).

Claims 1, 6, 9-19, 24, 29, 33-44, and 58

The Office Action rejected claims 1, 6, 9-19, 23-24, 29, 33-48 and 58 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,675,147 to Schaefer et al. (hereinafter "Schaefer") in view of U.S. Patent No. 5,375,199 Harrow et al. (hereinafter "Harrow"). The Examiner's statements for the rejection of claims 23 and 45-48, however, relied upon U.S. Patent No. 5,631,825 to van Weele et al, in addition to Schaefer and Harrow. As such, Applicants address the rejection of claims 23 and 45-48 with the rejection of claims 20-22 below; such claims were rejected under 35 U.S.C. §103(a) as being unpatentable over Schaefer in view of Harrow and van Weele. As for the rejection of claims 1, 6, 9-19, 24, 29, 33-44 and 58 under 35 U.S.C. §103(a) as being unpatentable over Schaefer in view of Harrow, Applicants respectfully traverse the rejection of the claims as follows.

In claims 1, 24, and 58, Applicants teach a graphical user interface and/or a method to provide such an interface, for providing real-time process information to a user with regard to a process that is operable under control of one or more process variables. The graphical user interface includes a scale extending along a gauge axis, one or more bars that extend along the

gauge axis, and a graphical shape displayed along the gauge axis. The one or more bars include a first bar and a second bar extending along the gauge axis. A first end of the first bar is representative of an engineering hard high limit for the process variable and a second end of the first bar is representative of an engineering hard low limit for the process variable. A first end of the second bar is representative of an operator set high limit for the process variable and a second end of the second bar is representative of an operator set low limit for the process variable. The graphical shape is representative of a current value of the process variable that is provided to the graphical user interface. Claim 58 further provides that the second bar extends along the gauge axis within the first bar and that user manipulation elements are movable to change one or more of the high and low process limit values.

The terms used in the claims must be read as defined in the specification. However, in view of the above amendments, much of such term definition has been incorporated into the claims. For example, the following description is given for various "limit" terms:

> As used herein, engineering physical limit values refer to limit values that define the physical limits of a piece of equipment or instrumentation. They represent the widest possible range of meaningful quantification of a process variable. For example, there may be engineering physical limits to measurements that a sensor may be able to provide.
>
> As used herein, engineering hard limit values are those limit values set by a user, particularly a control engineer, to establish a range over which an operator or another user can safely set operator set limit values.
>
> As used herein, operator set limit values are limit values through which operators exert influence on the controller 14. Such limits establish the range in which the control solution is free to act when it is afforded sufficient degrees of freedom.
>
> Lastly, as used herein, optimization soft limits, or otherwise referred to herein as delta soft bands, are pseudo limits describing an offset within the operator set limits that the optimization calculations will attempt to respect.

With the added definition to the terms of the claims as presented in the amendment herein, Applicants continue to respectfully submit that Schaefer and Harrow fail to teach or suggest all the claim limitations of claims 1, 24, and 58. For example, Schaefer and Harrow fail to teach or suggest a first bar and a second bar that both extend along the same gauge axis, as provided in claims 1, 24, and 58 (i.e., the ends of the first bar representative of engineering hard high and low limit values define a range in which operator set high and low limits are set and the ends of the second bar representative of the operator set high and low limits define a range in

which the process is free to operate).

The Office Action states that "[t]he differences between Schaefer et al. and the claims is a second bar extending along the gauge axis, wherein a first end of the second bar is representative of an operator set high limit for the process variable and a second end of the second bar is representative of an operator set low limit for the process variable" but that "Harrow et al. teaches the second pair of high and low limit elements (figure 13A, 206, 208, column 2, lines 38—44, column 19, lines 1-10)." Applicants respectfully submit that Harrow fails to teach what is alleged in the Office Action.

Harrow recites a system monitoring device that displays historical or real time information and also allows a user to set, via direct manipulation, a range of values for use by the system. For example, a user interface allows the user to expand the value of an interactive icon 200. The exemplary interactive icon 200 is illustrated in its expanded state on the graph in FIG. 13A where the user can move the range of values along the y-axis by dragging the slider 202 of the interactive icon 200 to change values associated with the interactive icon 200. Harrow indicates that the interactive icon 200 . . . allows a user to set a range of values in relationship to graphically presented data. (Col. 17, line 68 – Col. 18, line 2). In its default condition, the indicator bar 204 of the interactive icon supplies a single crossing threshold represented by a thin line (Col. 18, lines 12-16) for a variable (i.e., CRC errors per hour). Thus, the indicator bar 204 provides a single limit value for a particular variable, i.e., CRC errors per hour.

According to Harrow, a user can expand the value of the interactive icon 200 (i.e., the indicator bar 204) into a range of values so that the single limit value for the variable (i.e., CRC errors per hour) is a range designated for control of an alarm. For example, 206 in Figure 13A of Harrow indicates that "46" is the value at which "SOUND ALARM WHEN VALUE RISES ABOVE", and 208 in Figure 13A indicates that "26" is the value at which "CANCEL ALARM WHEN VALUE FALLS BELOW". As such, the values shown at 206 and 208 of Harrow represent an expanded range of values for a single operator limit value used to provide alarm function. In other words, Harrow provides an alarm range at the upper operator limit for the variable being monitored (e.g., CRC errors per hour). Harrow does not show anything

representative of "operator set high and low limits."

Contrary to Harrow, the present invention provides a second bar having ends that are representative of operator set high and low limits. As defined in the specification, such operator set limit values are limit values through which operators exert influence on the controller. Such limits establish the range in which the control solution is free to act when it is afforded sufficient degrees of freedom. The operator set limit values fall within a range established by the engineering hard limit values. In other words, the engineering hard limit values are those limit values set by a user, particularly a control engineer, to establish a range over which an operator or another user can safely set operator set limit values.

The limits discussed in Harrow are clearly only focused on a single operator limit (i.e., a high limit designated as line 204) for a variable (e.g., CRC errors per hour). A user can provide a range at this high limit to control some other activity (i.e., an alarm) through the designation of several values (i.e., 206 and 208) at the single operator limit, but there is no description of operator set high **and** low limits that establish the range in which the control solution is free to act when it is afforded sufficient degrees of freedom. In other words, the values in Harrow which according to the Examiner teach the operator set high and low limits are only pertinent to a single operator limit and an alarm range associated therewith, and not operator set high and low limits.

As such, Schaefer and Harrow fail to teach or suggest, besides other things, both a first bar having ends representative of engineering hard high and low limits and a second bar representative of operator set high and low limits for a corresponding process variable, as recited in each independent claim.

Second, in addition to Schaeffer and Harrow failing to teach or suggest all of the claim limitations as clearly set forth above, there is no teaching or suggestion in either of the references that would motivate one skilled in the art to make a modification to Schaefer using the teachings of Harrow as alleged by the Examiner so as to arrive at the present invention. The Examiner alleges that it would have been obvious to one skilled in the art, having the teachings of Schaeffer and Harrow before them to modify the gauge axis and the graphical shape taught by Schaefer to include the user defining high and low limits of Harrow "in order to provide a

dragging the slider portion of the second interactive icon into the top or bottom of the underlying graphic display of data causing the scale of the unerlying data to expand or contract so that any value on the underlying display of graphical data may be set." Even though it is unclear what is being referred to by the Examiner, Applicants set forth the following to show a lack of suggestion or motivation to make such modifications to Schaefer.

As explained above, Harrow does not show user defined operator high and low limits as alleged by the Examiner. If Schaefer was to be modified by the teachings of Harrow, the most that is taught, is the expansion of one of the upper limits such that another activity could be controlled thereby (e.g., an alarm such as described in Harrow).

For example, consider the upper limit number 18 in Figure 1 of Schaefer. If Schaefer was to be modified by Harrow, only another value on line 1 would appear to determine when an alarm condition for the variable associated with the number 18 would exist. In other words, the upper limit 18 would be expanded to provide an alarm range of values extending from the upper limit 18. Contrary to the present invention, Harrow does not show the addition of another set of operator limits within the engineering hard limits that establish the range in which the control solution is free to act when it is afforded sufficient degrees of freedom as described according to the present invention. To allege that the combination of Schaefer and Harrow teach anything more is clearly unsupported by the cited references.

In addition, Schaefer and Harrow fail to teach or suggest additional elements recited in claim 58. For example, claim 58 recites that the second bar extends along the gauge axis within the first bar. The Examiner states, in the "Response to Arguments" section of the office action, that this would be inherent in the references.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *See* M.P.E.P. § 2112. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson,* 169 F.3d 743, 745, 49 U.S.P.Q.2d 1949, 1950-

51 (Fed. Cir. 1999) (citations omitted). In the present case, the elements claimed to be inherent are clearly not necessarily present in the references cited by the Examiner and the Examiner has not met the burden of showing that such elements would be necessarily present (e.g., various configurations of the bars is possible).

With respect to claims 6, 9-19, 29, and 33-44, Applicants respectfully submit that these claims are also patentable as further limitations of patentable base claims 1 and 24. Furthermore, claims 6, 9-19, 29, and 33-44 are each patentable over Schaefer and Harrow based on the subject matter recited in each of the claims and for reasons presented in previous responses to office actions incorporated herein by reference.

Based on at least the forgoing reasons, the Office Action fails to establish a *prima facie* case of obviousness for the rejection of claims 1, 6, 9-19, 24, 29, 33-44 and 58. Applicants respectfully request reconsideration and allowance of claims 1, 6, 9-19, 24, 29, 33-44 and 58.

Claims 20-23, and 45-48

The Office Action further rejected claims 20-22 under 35 U.S.C. 103(a) as being unpatentable over Schaefer in view of Harrow and further in view of U.S. Patent No. 5,631,825 to van Weele et al. (hereinafter "van Weele"). Claims 23, and 45-48 were asserted to be rejected under 35 U.S.C. §103(a) as being unpatentable over Schaefer in view of Harrow. However, the Examiner's statements for the rejection of claims 23, and 45-48 relied upon van Weele, in addition to Schaefer and Harrow. As such, Applicants address the rejection of claims 23, and 45-48 with the rejection of claims 20-22. Applicants respectfully traverse the rejection of claims 20-23 and 45-48, as follows.

With respect to claims 20-23 and 45-48, Applicants respectfully submit that these claims are patentable as further limitations of patentable base claims 1 and 24. Furthermore, such claims are each patentable over Schaefer, Harrow and van Weele based on the subject matter recited in each of the claims and for reasons presented in previous responses to office actions incorporated herein by reference.

Based on at least the forgoing reasons, the Office Action fails to establish a *prima facie* case of obviousness for the rejection of claims 20-23 and 45-48. Applicants respectfully request

reconsideration and allowance of claims 20-23 and 45-48.

Allowable Subject Matter

Applicants acknowledge the Examiner's indication that claims 49-57 are allowed. In addition, Applicants acknowledge the Examiner's indication that claims 7, 8, 27 and 30-32 are objected to as being dependent on a rejected base claim, but that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicants have not rewritten the "objected to" claims in independent form as Applicants continue to believe that the claims upon which they depend are also in allowable condition.

Summary

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicant's Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 14 day of MAY, 2003, at 1:55pm (Central Time).

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14 May 2003
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APPENDIX A - CLAIM AMENDMENTS INCLUDING NOTATIONS TO INDICATE CHANGES MADE
Serial No.: 09/346,412
Docket No. H16-25990 US (M&R 115.00110101)

In the Claims

Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted. For convenience, all pending claims are shown below.

1. (Twice Amended) A graphical user interface for providing real-time process information to a user with regard to a process that is operable under control of one or more process variables, the graphical user interface comprising:

a scale extending along a gauge axis;

one or more bars extending along the gauge axis, each bar representative of a set of high and low process limit values for a process variable, wherein the one or more bars extending along the gauge axis comprises:

a first bar extending along the gauge axis, wherein a first end of the first bar is representative of an engineering hard high limit for the process variable and a second end of the first bar is representative of an engineering hard low limit for the process variable, wherein the first end and second end of the first bar representative of the engineering hard high and hard low limits define a range in which operator set high and low limits are set; and

a second bar extending along the gauge axis, wherein a first end of the second bar is representative of [an] the operator set high limit for the process variable and a second end of the second bar is representative of [an] the operator set low limit for the process variable, wherein the first end and second end of the second bar representative of the operator set high and low limits define a range in which the process is free to operate; and

a graphical shape displayed along the gauge axis representative of a current value of the process variable.

6. The graphical user interface of claim 1, wherein the second bar extending along the gauge axis representative of operator set high and low limits for the process variable extends along the gauge axis within the first bar representative of the engineering hard high and low limits for the process variable.

7. The graphical user interface of claim 6, wherein the one or more bars extending along the gauge axis further comprise a delta soft high region within the second bar and adjacent the first end thereof and a delta soft low region within the second bar and adjacent the second end thereof, and further wherein the delta soft high region and the delta soft low region are representative of a delta optimization range within the operator set high and low limits.

8. The graphical user interface of claim 7, wherein the delta soft high region and the delta soft low region overlap within the second bar to provide for optimization to a pseudo set point.

9. The graphical user interface of claim 1, wherein the graphical user interface further comprises user manipulation elements movable to change one or more of the high and low process limit values.

10. The graphical user interface of claim 9, wherein the scale extending along the gauge axis is automatically adjustable as a function of the movement of the user manipulation elements.

11. The graphical user interface of claim 9, wherein the user manipulation elements comprise one or more manipulation pointer flags associated with operator set limits, the one or more manipulation pointer flags are draggable along the gauge axis to change such operator set limits.

12. The graphical user interface of claim 9, wherein the user manipulation elements comprise one or more manipulation pointer flags associated with the engineering hard limits, the one or more manipulation pointer flags are draggable along the gauge axis to change such engineering hard limits.

13. The graphical user interface of claim 1, wherein the graphical shape representative of the current value of the process variable is a pointing device proximate to the scale.

14. The graphical user interface of claim 1, wherein the graphical user interface further comprises at least one additional graphical shape displayed along the gauge axis representative of at least one additional value for the process variable.

15. The graphical user interface of claim 14, wherein the additional graphical shape representative of at least one additional value for the process variable has a color of a set of colors that reflects the state of the current value for the process variable relative to the set of high and low process limit values.

16. The graphical user interface of claim 1, wherein the scale extending along the gauge axis is adjustable as a function of a current value of the process variable relative to the one or more process limits values.

17. The graphical user interface of claim 1, wherein the graphical shape representative of the current value of the process variable has a color of a set of colors that reflects the state of the current value for the process variable relative to the set of high and low process limit values.

18. The graphical user interface of claim 17, wherein a color for the graphical shape represents one of a current value of the corresponding process variable being within the set of high and low process limit values, the current value of the corresponding process variable being within a certain percentage of a limit value of the set of high and low process limit values, and the current value of the corresponding process variable being outside of the set of high and low process limit values.

19. The graphical user interface of claim 1, wherein a background of a region adjacent the one or more bars along the gauge axis is of a color when the graphical shape representative of the current value of the process variable is outside of the high and low process limit values, and

further wherein the region is representative of engineering physical limits of the process variable.

20. The graphical user interface of claim 1, wherein the graphical user interface further comprises a trend graph for the process variable.

21. The graphical user interface of claim 20, wherein the trend graph comprises at least one of a historical trend graph and a prediction trend graph for displaying trend information representative of process variable values.

22. The graphical user interface of claim 20, wherein the trend graph comprises at least one of a historical trend graph and a prediction trend graph for displaying trend information representative of process variable limits.

23. The graphical user interface of claim 1, wherein the one or more process variables comprise a plurality of manipulated variables and a plurality of controlled variables of a continuous multivariable process.

24. (Twice Amended) A computer implemented method for providing a graphical user interface for providing real-time process information to a user for a process that is operable under control of one or more process variables, the method comprising:

displaying a scale extending along a gauge axis;

displaying one or more bars extending along the gauge axis, each bar representative of a set of high and low process limit values for a process variable, wherein displaying one or more bars extending along the gauge axis comprises:

displaying a first bar extending along the gauge axis, wherein a first end of the first bar is representative of an engineering hard high limit for the process variable and a second end of the first bar is representative of an engineering hard low limit for the

process variable, wherein the first end and second end of the first bar representative of the engineering hard high and hard low limits define a range in which operator set high and low limits are set; and

displaying a second bar extending along the gauge axis, wherein a first end of the second bar is representative of [an] the operator set high limit for the process variable and a second end of the second bar is representative of [an] the operator set low limit for the process variable, wherein the first end and second end of the second bar representative of the operator set high and low limits define a range in which the process is free to operate; providing data representative of at least the current value of the process variable; and

displaying a graphical shape along the gauge axis representative of the current value of the process variable relative to the set of high and low process limit values.

27. The method of claim 24, wherein displaying one or more bars extending along the gauge axis further comprises displaying a delta soft high region within the second bar and adjacent the first end thereof and a delta soft low region within the second bar and adjacent the second end thereof, and further wherein the delta soft high region and the delta soft low region are representative of a delta optimization range within the operator set high and low limits.

29. The method of claim 24, wherein displaying the one or more bars extending along the gauge axis comprises displaying the second bar extending along the gauge axis representative of the operator set high and low limits for the process variable within the first bar representative of engineering hard high and low limits for the process variable.

30. The method of claim 29, wherein displaying one or more bars extending along the gauge axis further comprises displaying a delta soft high region within the second bar and adjacent the first end thereof and a delta soft low region within the second bar and adjacent the second end thereof, and further wherein the delta soft high region and the delta soft low region are representative of a delta optimization range within the operator set high and low limits.

31. The method of claim 29, wherein displaying the delta soft high region within the second bar and adjacent the first end thereof and a delta soft low region within the second bar and adjacent the second end thereof comprises:

receiving user input representative of the delta values; and

displaying a delta soft high region and a delta soft low region that overlap providing for an optimization pseudo set point within the operator set high and low limits.

32. The method of claim 31, wherein the optimization pseudo set point is proportional to the delta soft high region and delta soft low region.

33. The method of claim 24, wherein the method further comprises:

displaying user manipulation elements movable to change one or more of the high and low process limit values;

moving such user manipulation elements to generate data representative of changed high or low process limit values; and

providing such data to a controller of the process.

34. The method of claim 33, wherein the method further comprises rescaling the scale extending along the gauge axis as a function of the movement of the user manipulation elements.

35. The method of claim 33, wherein moving such user manipulation elements to generate data comprises dragging one or more manipulation pointer flags associated with the operator set limits along the gauge axis to change such operator set limits.

36. The method of claim 33, wherein moving such user manipulation elements to generate data comprises dragging one or more manipulation pointer flags associated with the engineering hard limits along the gauge axis to change such engineering hard limits.

37. The method of claim 33, wherein moving such user manipulation elements to generate data comprises dragging one or more manipulation pointer flags associated with the delta soft limits along the gauge axis to change such delta soft limits.

38. The method of claim 24, wherein the graphical shape representative of the current value of the process variable is a pointing device proximate to the scale extending along the gauge axis.

39. The method of claim 24, wherein the method further comprises displaying at least one additional graphical shape along the gauge axis representative of an additional value for the process variable.

40. The method of claim 39, wherein displaying the at least one additional graphical shape comprises displaying at least one additional pointing device proximate to the scale extending along the gauge axis.

41. The method of claim 24, wherein the method further comprises rescaling the scale extending along the gauge axis as a function of the current value of the process variable relative to the set of high and low process limit values.

42. The method of claim 24, wherein displaying the graphical shape representative of the current value of the process variable comprises:

determining a state of the current value of the process value relative to the set of high and low process limit values; and

displaying the graphical shape in a color of a set of colors that reflects the state of the current value for the process variable.

43. The method of claim 42, wherein determining the state of the current value of the process value relative to the set of high and low process limit values comprises determining whether the current value of the process variable is within the set of high and low process limit values, determining whether the current value of the process variable is within a certain percentage of a limit value of the set of high and low process limit values, and determining whether the current value of the process variable is a certain percentage outside of the set of high and low process limit values.

44. The method of claim 24, wherein the method further comprises:

determining whether the current value of the process variable is outside of the set of high and low process limit values; and

displaying a graphical element representative of engineering physical limits of the process variable when the current value of the process variable is outside the set of high and low process limit values.

45. The method of claim 44, wherein displaying a graphical element representative of engineering physical limits of the process variable comprises displaying a background region adjacent the one or more bars along the gauge axis in a particular color representative of engineering physical limits.

46. The method of claim 24, wherein the method further comprises displaying a trend graph for the process variable with the displayed scale, one or more bars, and the graphical shape representative of the current value of the process variable.

47. The method of claim 46, wherein displaying the trend graph comprises displaying at least one of a historical trend graph and a prediction trend graph for the process variable representative of process variable values.

48. The method of claim 46, wherein displaying the trend graph comprises displaying at least one of a historical trend graph and a prediction trend graph for the process variable representative of process variable limits.

49. A graphical user interface for providing real-time process information to a user with regard to a process that is operable under control of one or more process variables, the graphical user interface comprising:

a scale extending along a gauge axis;

one or more bars extending along the gauge axis, each bar representative of a set of high and low process limit values for a process variable, wherein the one or more bars extending along the gauge axis comprise a first bar extending along the gauge axis, wherein a first end of the first bar is representative of an operator set high limit for the process variable and a second end of the first bar is representative of an operator set low limit for the process variable, and further wherein the one or more bars extending along the gauge axis further comprise a delta soft high region within the first bar and adjacent the first end thereof and a delta soft low region within the first bar and adjacent the second end thereof, and further wherein the delta soft high region and the delta soft low region are representative of a delta optimization range within the operator set high and low limits; and

a graphical shape displayed along the gauge axis representative of a current value of the process variable.

50. The graphical user interface of claim 49, wherein the one or more bars extending along the gauge axis further comprise a second bar extending along the gauge axis, wherein a first end of the second bar is representative of an engineering hard high limit for the process variable and

a second end of the second bar is representative of an engineering hard low limit for the process variable.

51. The graphical user interface of claim 50, wherein the first bar extending along the gauge axis representative of operator set high and low limits for the process variable extends along the gauge axis within the second bar representative of the engineering hard high and low limits for the process variable.

52. The graphical user interface of claim 49, wherein the delta soft high region and the delta soft low region overlap within the first bar to provide for optimization to a pseudo set point.

53. A computer implemented method for providing a graphical user interface for providing real-time process information to a user for a process that is operable under control of one or more process variables, the method comprising:

displaying a scale extending along a gauge axis;

displaying one or more bars extending along the gauge axis, each bar representative of a set of high and low process limit values for a process variable, wherein displaying one or more bars extending along the gauge axis comprises displaying a first bar extending along the gauge axis, wherein a first end of the first bar is representative of an operator set high limit for the process variable and a second end of the first bar is representative of an operator set low limit for the process variable, and wherein displaying one or more bars extending along the gauge axis further comprises displaying a delta soft high region within the first bar and adjacent the first end thereof and a delta soft low region within the first bar and adjacent the second end thereof, and further wherein the delta soft high region and the delta soft low region are representative of a delta optimization range within the operator set high and low limits;

providing data representative of at least the current value of the process variable; and

displaying a graphical shape along the gauge axis representative of the current value of the process variable relative to the set of high and low process limit values.

54. The method of claim 53, wherein displaying one or more bars extending along the gauge axis comprises displaying a second bar extending along the gauge axis, wherein a first end of the second bar is representative of an engineering hard high limit for the process variable and a second end of the second bar is representative of an engineering hard low limit for the process variable.

55. The method of claim 53, wherein displaying the one or more bars extending along the gauge axis comprises displaying the first bar extending along the gauge axis representative of the operator set high and low limits for the process variable within the second bar representative of engineering hard high and low limits for the process variable.

56. The method of claim 53, wherein displaying the delta soft high region within the first bar and adjacent the first end thereof and a delta soft low region within the first bar and adjacent the second end thereof comprises:

receiving user input representative of the delta values; and

displaying a delta soft high region and a delta soft low region that overlap providing for an optimization pseudo set point within the operator set high and low limits.

57. The method of claim 56, wherein the optimization pseudo set point is proportional to the delta soft high region and delta soft low region.

58. (Once Amended) A graphical user interface for providing real-time process information to a user with regard to a process that is operable under control of one or more process variables, the graphical user interface comprising:

a scale extending along a gauge axis;

one or more bars extending along the gauge axis, each bar representative of a set of high and low process limit values for a process variable, wherein the one or more bars extending

along the gauge axis comprise:

a first bar extending along the gauge axis, wherein a first end of the first bar is representative of an engineering hard high limit for the process variable and a second end of the first bar is representative of an engineering hard low limit for the process variable, wherein the first end and second end of the first bar representative of the engineering hard high and hard low limits define a range in which operator set high and low limits are set; and

a second bar extending along the gauge axis, wherein a first end of the second bar is representative of [an] the operator set high limit for the process variable and a second end of the second bar is representative of [an] the operator set low limit for the process variable, wherein the first end and second end of the second bar representative of the operator set high and low limits define a range in which the process is free to operate, and further wherein the second bar extends along the gauge axis within the first bar representative of the engineering hard high and low limits for the process variable;

a graphical shape displayed along the gauge axis representative of a current value of the process variable; and

user manipulation elements movable to change one or more of the high and low process limit values.